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REMARKS

Applicants have carefully studied the Office Action. This paper is intended to be fully responsive to all points of rejection and objection raised by the Examiner and is believed to place the application in condition for allowance. Favorable reconsideration and allowance of the application are respectfully requested.

Applicant asserts that the present invention is new, non-obvious and useful. Prompt consideration and allowance of the claims is respectfully requested.

Status of Claims

Claims 1 - 34 are pending in the application. Claims 1 - 34 have been rejected. Claim 4 has been cancelled without prejudice or disclaimer. Claims 1 - 3, 8, 12, 17, 23, 26, 28 and 34 have been amended. Applicants respectfully assert that no new matter has been added.

CLAIM REJECTIONS

35 U.S.C. § 112 Rejections

Claims 1 - 33 have been rejected under 35 U.S.C. § 112. Specifically, the office action contended that the bodies of claims 1, 8, 17 and 26 are not linked to the preambles of the claims. Applicants respectfully traverse the rejection. In order, however, to further the allowance of the application, independent claims 1, 8, 17 and 26 have been amended.

The amended preamble of claims 1 and 17 recites "a method for printing a three-dimensional model in layers" and the body of the claims recites "selectively and separately dispensing a first interface material and a second interface material from a printing head".

Likewise, the amended preamble of claims 8 and 26 recites "a system for printing a three-dimensional model in layers" and the body of the claims refers to the printing system at least by reciting "a printing head for selectively and separately dispensing a first interface material and a second interface material within a given layer".

Dependent claims 2, 3, 5 - 7, 9 - 16, 18 - 25 and 27 - 33 are dependent, directly or indirectly, from one of claims 1, 8, 17 and 26 and include all the limitations of the parent

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claim. Claim 4 has been cancelled and therefore the rejection of the claim is now moot. Therefore, Applicants respectfully request that the rejections of claims 1 – 3 and 5 - 33 under 35 U.S.C. § 112 be withdrawn.

35 U.S.C. § 103 Rejections

Claims 1 - 34 have been rejected under 35 U.S.C. § 103 as being unpatentable by Hull et al. (US 5,192,559) in view of Leyden et al. (US 6,270,335). Applicants respectfully traverse the rejection in view of the amendments made and the remarks that follow.

Without conceding the appropriateness of the combination, Applicants respectfully submit that the combination of Hull and Leyden does not meet the requirements of an obviousness rejection at least in that the combination fails to teach or suggest all the elements of the claims.

In particular, the combination of Hull and Leyden does not teach or suggest, at least, "selectively and separately dispensing a first interface material and a second interface material from a printing head within a given layer", as recited in amended claims 1, 8, 17 and 26 (emphasis added).

Specifically, Hull describes a method for dispensing material in sheets, each sheet corresponding to a cross-sectional layer (see Abstract; col. 20, lines 1 – 9) and each layer being of a different material (see col. 19, lines 63 – 65; Fig. 9(A)).

Leyden discloses selective deposition of a single interface material forming both the object and the support structure. The material used in Leyden may comprise various reactive components as detailed in Tables I - III.

Further, the applicants respectfully disagree with the office action allegation stating that Figs. 25A and 25B illustrate "dispensing a first interface material and a second interface material". Figures 25a-e illustrate a building technique wherein the object is separated into pieces, built separately and then adhered together (see col. 9, lines 56 – 58). Fig. 25b depicts the first step in the practice of the technique, which involves splitting the original or desired object design into two or more components (see col. 41, lines 46 – 48). These components are all made of the same material.

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Accordingly, neither Hull nor Leyden, alone or in combination, teach or suggest at least "selectively and separately dispensing a first interface material and a second interface material from a printing head within a given layer", as recited in amended claims 1, 8, 17 and 26.

Furthermore, the Office Action contended that "it would have been obvious to a person skilled in the art at the time the invention was made to modify the teaching of Hull with the teaching of Leyden in order to provide successfully separate supports from a three-dimensional object with less distortion by controlling how material is dispensed" (see Office Action, page 3).

Applicant respectfully submits that there is no suggestion or motivation in the Hull reference or in the knowledge generally available to one of ordinary skill in the art to modify the reference with the teaching of Leyden.

The two methods of 3-dimensional object manufacturing are different from each other and are based on different principles of operation. Hull describes the use of a polymer sheets with two different layers (one on top of the other) to control the print-through problem which may occur during the process of selective curing of each layer. The selective curing cures the bulk material, such as the polymer sheet at desired positions and the remaining uncured material is removed.

The problem of print-through is obviously not relevant to the process of selective deposition in which the material is selectively deposited at discrete positions layer by layer. Moreover, support structures are not used at all with the method as taught by Hull. Accordingly, even if the teaching of Leyden would include dispensing separately a first interface material and a second interface material into a given layer, which is not the case, it would not have been obvious to a person skilled in the art at the time the invention was made to modify the teaching of Hull with such teaching in order to provide successfully separate supports from a three-dimensional object with less distortion by controlling how material is dispensed, as contended by the office action.

Dependent claims 2, 3, 5 – 7, 9 – 16, 18 – 25 and 27 – 34 are dependent, directly or indirectly, from one of claims 1, 8, 17 and 26 and include all the limitation of the parent

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claim. Claim 4 has been cancelled and there for the rejection the claim is now moot. Therefore, Applicants respectfully request that the rejections of claims 1 – 3 and 5 - 34 under 35 U.S.C. § 103 be withdrawn.

35 U.S.C. § 103 Rejection of Claims 10, 18 and 27

Claims 10, 18 and 27 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hull et al. (US Patent 5,192,559) in view of Leyden et al. (US 6,270,335) as applied to claims 8, 17 and 26 and further in view of Penn et al. (U.S. 5,594,652).

Applicants respectfully traverse the rejection because a *prima facie* case of obviousness has not been established.

Without conceding the appropriateness of the combination of Hull, Leyden and Penn, Applicants assert that the combination of Hull, Leyden and Penn does not teach or suggest any of claims 10, 18 and 27.

Claim 10 depends directly from claim 8; claim 18 depends directly from claim 17; and claim 27 depends directly from claim 26. Therefore, claims 10, 18 and 27 include distinct features of claims 8, 17 and 26, respectively. Claims 8, 17 and 26 are patentable over Hull and Leyden as discussed above. Penn does not cure the deficiency of the combination of Hull and Leyden. Therefore, claims 8, 17 and 26 are patentable over Hull, Leyden and Penn, alone or in combination. Applicants respectfully submit that claims 10, 18 and 27 are patentable for at least the same reason as claims 8, 17, and 26.

In view of the above, Applicants respectfully request that the rejections of claims 10, 18 and 27 under 35 U.S.C. § 103(a) be withdrawn.

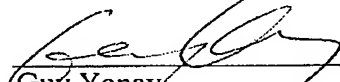
CONCLUSION

In view of above remarks, the pending claims 1 - 3, and 5 - 34 are deemed to be allowable. Their favorable reconsideration and allowance are respectfully requested. Should the Examiner have any question or comment with regard to this paper, the Examiner is requested to contact the undersigned at the telephone number below.

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If additional fees in connection to this paper are due, please change such fees to deposit account No. 50-3355.

Respectfully submitted,


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